

WHAT IS CLAIMED IS:

1. A method of manufacturing a golf club comprising:

providing a golf club head having a front surface adapted for impacting a golf ball, a  
5 back surface, a heel end and a toe end, the golf club head further comprising a hosel bore  
therein;

providing a golf club shaft having an outer surface, a tip end and a butt end;

inserting a radial crush sleeve into the hosel bore, the radial crush sleeve having an  
outer surface adapted to engage the inner surface of the hosel bore and an inner surface

10 adapted to engage the outer surface of the tip end of the golf club shaft;

applying a layer of adhesive between the outer surface of the tip end of the golf club  
shaft and an inner surface of the hosel bore;

inserting the tip end of the golf club shaft into the hosel bore such that the tip end of  
the golf club shaft passes through the radial crush sleeve and the radial crush sleeve is

15 compressed radially between the outer surface of the tip end of the golf club shaft and the  
inner surface of the hosel bore; and

curing the layer of adhesive.

2. The method of claim 1, wherein:

20 the radial crush sleeve comprises a substantially cylindrical band with a plurality of  
dimples extending radially inward.

3. The method of claim 1, wherein:

the radial crush sleeve comprises a substantially cylindrical band with a plurality of dimples extending radially outward.

5 4. The method of claim 1, wherein:

The hosel bore is formed with a cylindrical undercut;

5. The method of claim 4, wherein:

10 the radial crush sleeve is inserted into the hosel bore and retained in the cylindrical undercut prior to insertion of the tip end of the golf club shaft; and wherein

the radial crush sleeve inner diameter is less than the outer diameter of the tip end of the golf club shaft, such that the radial crush sleeve is compressed radially outward as the tip end of the golf club is inserted into the hosel bore.

15 6. The method of claim 5, wherein:

the radial crush sleeve is composed of .006 inch thick stainless steel with a plurality of dimples each extending radially inward approximately .025 inches.

7. The method of claim 6, wherein:

20 the diameter of the undercut and the diameter of the tip end of the shaft are configured such that there is a nominal diametral interference of .010 inch between the tip end of the shaft and the inwardly extending dimples.

8. The method of claim 6, wherein:

the hosel bore has a nominal diameter of .362 inch;

the undercut has a nominal diameter of .400 inch; and

the tip end of the shaft has a nominal diameter of .360 inch such that there is a nominal

5 diametral interference of .010 inch between the crush sleeve as it is retained in the undercut  
and the shaft tip as it is inserted into the crush sleeve.

9. The method of claim 1, wherein:

the golf club shaft is formed with a pilot shaft and a shoulder proximal the tip end of

10 the golf club shaft.

10. The method of claim 9, wherein:

the radial crush sleeve is inserted over the pilot shaft of the golf club shaft until it rests  
against the shoulder; and wherein

15 the radial crush sleeve outer diameter is greater than the inner diameter of the hosel  
bore, such that the radial crush sleeve is compressed radially inward as the tip end of the golf  
club is inserted into the hosel bore.

11. A golf club comprising:

20 a golf club head having a front surface adapted for impacting a golf ball, a back  
surface, a heel end and a toe end, said golf club head further comprising a hosel bore therein  
defining an inner surface for receiving a tip end of a golf club shaft;

a golf club shaft having a tip end and a butt end, the tip end of said golf club shaft being disposed within the hosel bore;

a radial crush sleeve disposed in the hosel bore radially outward of the tip end of the golf club shaft and radially inward of the inner surface of the hosel bore, said radial crush sleeve comprising a substantially cylindrical band portion having a plurality of radially extending dimples formed therein, said radial crush sleeve adapted to cause an interference fit between the tip end of the golf club shaft and the inner surface of the hosel bore; and

a layer of adhesive disposed within the hosel bore for bonding the tip end of said golf club shaft to the hosel bore.

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12. The golf club of claim 11, wherein:

the hosel bore comprises a major diameter and an undercut region, the undercut region having a diameter greater than the major diameter of the hosel bore.

15 13. The golf club of claim 12, wherein:

the diameter of the undercut region is at least .040 greater than the major diameter of the hosel bore.

14. The golf club of claim 12, wherein:

20 the radially extending dimples of said radial crush sleeve extend radially inward from the substantially cylindrical band portion of said radial crush sleeve.

15. The golf club of claim 11, wherein:

said golf club shaft comprises a pilot shaft and a shoulder proximal the tip end of said golf club shaft.

5 16. The golf club shaft of claim 15, wherein:

the radially extending dimples of said radial crush sleeve extend radially outward from the substantially cylindrical band portion of said radial crush sleeve.

17. A method of manufacturing a golf club comprising:

10 providing a golf club head having a front surface adapted for impacting a golf ball, a back surface, a heel end and a toe end, the golf club head further comprising a hosel;

providing a golf club shaft having a tip end and a butt end;

providing a radial crush sleeve comprising a substantially cylindrical band with a plurality of radially extending dimples formed therein;

15 applying a layer of adhesive between the tip end of the golf club shaft and the hosel;

assembling the tip end of the golf club shaft to the hosel, with the radial crush sleeve interposed between the tip end of the golf club shaft and the hosel such that the radial crush sleeve is radially compressed between the tip end of the golf club shaft and the hosel, whereby the friction between the radial crush sleeve, the tip end of the golf club shaft and the hosel

20 holds the golf club shaft in axial and radial alignment with the golf club head; and

curing the layer of adhesive with the golf club shaft held in place by the radial crush sleeve.

18. The method of claim 17, wherein:

the hosel includes a bore defined by an inner surface;

the tip end of the golf club shaft has an outer surface; and

the radial crush sleeve is interposed between the outer surface of the golf club shaft

5 and the inner surface of the bore.

19. The method of claim 17, wherein:

the hosel comprises a mandrel having an outer surface;

the tip end of the golf club shaft has a tip bore defined by an inner surface; and

10 the radial crush sleeve is interposed between the outer surface of the mandrel and the  
inner surface of the tip bore.

20. A golf club comprising:

a golf club head having a front surface adapted for impacting a golf ball, a back  
15 surface, a heel end and a toe end, said golf club head further comprising a hosel;

a golf club shaft having a tip end and a butt end, the tip end of said golf club shaft  
being attached to the hosel of said golf club head;

a radial crush sleeve interposed between the tip end of the golf club shaft and the  
hosel, said radial crush sleeve comprising a substantially cylindrical band with a  
20 plurality of radially extending dimples formed therein, said radial crush sleeve adapted to  
cause an interference fit between the tip end of the golf club shaft and the hosel.

21. The golf club of claim 20, wherein:

the hosel includes a bore defined by an inner surface;

the tip end of the golf club shaft has an outer surface; and

the radial crush sleeve is interposed between the outer surface of the golf club shaft

5 and the inner surface of the bore.

22. The golf club of claim 20, wherein:

the hosel comprises a mandrel having an outer surface;

the tip end of the golf club shaft has a tip bore defined by an inner surface;

10 and the radial crush sleeve is interposed between the outer surface of the mandrel and  
the inner surface of the tip bore.

23. The golf club of claim 20, further comprising:

a layer of adhesive disposed between the hosel and the tip end of said golf club shaft

15 for bonding the tip end of said golf club shaft to the hosel.